

1. TRANSMITTED DATA

1-1 CHANNEL MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description	ENA
1000 nnnn (8n)	0kkk kkkk (kk)	0100 0000 (40)	Note Off kkk kkkk=0..127 (61Keys+Transpose)	A
1001 nnnn (9n)	0kkk kkkk (kk)	0vvv vvvv (vv)	Note On kkk kkkk=0..127 (61Keys+Transpose) vvv vvvv=1..127	A
1010 nnnn (An)	0kkk kkkk (kk)	0vvv vvvv (vv)	Poly Key Pressure (Recorded Seq Data)	T,Q
1011 nnnn (Bn)	0000 0000 (00)	0mmmm mmmmm (mm)	Bank Select(MSB) (BANK Key, etc)	*1 P
1011 nnnn (Bn)	0000 0001 (01)	0vvv vvvv (vv)	Modulation 1 (Joystick(+Y))	C
1011 nnnn (Bn)	0000 0010 (02)	0vvv vvvv (vv)	Modulation 2 (Joystick(-Y))	C
1011 nnnn (Bn)	0000 0100 (04)	0000 0000 (00)	Foot Pedal (Select Main Scale)	C
1011 nnnn (Bn)	0000 0100 (04)	0111 1111 (7F)	Foot Pedal (Select Sub Scale)	C
1011 nnnn (Bn)	0000 0111 (07)	0vvv vvvv (vv)	Volume (Assign Pedal, etc)	C
1011 nnnn (Bn)	0000 1010 (0A)	0vvv vvvv (vv)	Panpot (by A:B Panpot)	C
1011 gggg (Bg)	0000 1100 (0C)	0vvv vvvv (vv)	Effect Control (Assignable Pedal)	C
1011 nnnn (Bn)	0010 0000 (20)	0111 1111 (11)	Bank Select(LSB) (BANK Key, etc)	*1 P
1011 nnnn (Bn)	0100 0000 (40)	0000 0000 (00)	Hold 1 Off (Damper Pedal)	C
1011 nnnn (Bn)	0100 0000 (40)	0111 1111 (7F)	Hold 1 On (Damper Pedal)	C
1011 nnnn (Bn)	0ccc cccc (cc)	0vvv vvvv (vv)	Control Data (Recorded Seq Data) ccc cccc=00..127	C,Q
1100 nnnn (Cn)	0pppp pppp (pp)	---- ----	Program Change (Prog Change)	*1 P
1101 nnnn (Dn)	0vvv vvvv (vv)	---- ----	Channel Pressure (Aftertouch)	T
1110 nnnn (En)	0bbb bbbb (bb)	0bbb bbbb (bb)	Pitch Bend (Joystick(X))	C

nnnn : MIDI Channel No.(0-15) Usually Global Channel. When using sequencer, each track's channel.

gggg : Always Global Channel No.(0-15)

vvvv : Value

ENA = A : Always Enabled

C : Enabled when Control Filter in GLOBAL Mode is ENA

P : Enabled when Program Filter in GLOBAL Mode is ENA

T : Enabled when Aftertouch Filter in GLOBAL Mode is ENA

Q : Enabled when sequencer is playing (transmitting) or recording (receiving)

T,Q: T and Q

C,Q: C and Q

*1 : Program : MIDI Out (Hex)

BANK 0(GM): mm,ll,pp = 38,00,00..7F

BANK 1 : mm,ll,pp = 00,01,00..7F

BANK 2 : mm,ll,pp = 00,02,00..7F

BANK 3 : mm,ll,pp = 00,03,00..7F

BANK 4 : mm,ll,pp = 00,04,00..01

1-2 SYSTEM COMMON MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description
1111 0010 (F2)	0sss ssss (ss)	0ttt tttt (tt)	Song Position Pointer sss ssss : Least significant (LSB) *2 ttt tttt : Most significant (MSB) *2
1111 0011 (F3)	0000 ssss (ss)	---- ----	Song Select ssss : Song No. = 0..9

Transmitted when in Song mode (Internal Clock)

When the number is changed, the C-900 transmits [Song Select], then [Bank Select], [Program Change],[Volume], and [Panpot] for each track whose Status = EXT or BOTH. Then [Song Position Pointer].

*2 : For Example Time Signature = 4/4, 8/8

tt,ss = 00,10 / Measure

1-3 SYSTEM REALTIME MESSAGES

Status (Hex)	Description
1111 1000 (F8)	Timing Clock *3
1111 1010 (FA)	Start *3

1111 1011 (FB)	Continue	*3
1111 1100 (FC)	Stop	*3
1111 1110 (FE)	Active Sensing	

*3 : Transmits when in Song or Backing Sequence mode (Internal Clock)

1-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (DEVICE INQUIRY REPLY)

Byte (Hex)	Description
1111 0000 (F0)	Exclusive Status
0111 1110 (7E)	Non Realtime Message
0000 gggg (0g)	MIDI GLOBAL CHANNEL (DEVICE ID)
0000 0110 (06)	INQUIRY MESSAGE
0000 0010 (02)	IDENTITY REPLY
0100 0010 (42)	KORG ID (MANUFACTURERS ID)
0011 1001 (39)	i-series ID (FAMILY CODE (LSB))
0000 0000 (00)	(FAMILY CODE (MSB))
0000 0110 (06)	C-900 (MEMBER CODE (LSB))
0000 0000 (00)	(MEMBER CODE (MSB))
0*** **** (**)	ROM No. 1.. (Minor Ver. (LSB))
0000 0000 (00)	(Minor Ver. (MSB))
0*** **** (**)	SOFT VER. 1.. (Major Ver. (LSB))
0000 0000 (00)	(Major Ver. (MSB))
1111 0111 (F7)	END OF EXCLUSIVE

Transmits when INQUIRY MESSAGE REQUEST Received

1-5 STRUCTURE OF KORG SYSTEM EXCLUSIVE MESSAGES

1st Byte = 1111 0000 (F0) : Exclusive Status		
2nd Byte = 0100 0010 (42) : KORG ID		
3rd Byte = 0011 gggg (3g) : Format ID	g:Global ch.	EX.Header
4th Byte = 0100 0011 (43) : C-900 ID		
5th Byte = 0fff ffff (ff) : Function Code	(See Func Code List)	
6th Byte = 0ddd dddd (dd) : Data		
:	:	
LastByte = 1111 0111 (F7) : End of Exclusive EOX		

1-6 Transmitted Function Code List

Func	Description	R	D	E	C
42	MODE DATA	o			
4E	MODE CHANGE				o *4
53	DRUM KIT PARAMETER CHANGE				o *5
4C	ALL PROGRAM PARAMETER DUMP	o			
64	ALL ARRANGEMENT PARAMETER DUMP	o	o		
65	ALL STYLE DATA DUMP	o			
66	ALL BACKING SEQUENCE DATA DUMP	o	o		
51	GLOBAL DATA DUMP	o	o		
52	DRUMS DATA DUMP	o	o		
50	ALL DATA(GLB,DRM,PRG,ARR,STY,SEQ,BSQ)DUMP	o	o		
26	RECEIVED MESSAGE FORMAT ERROR	o		o	
23	DATA LOAD COMPLETED (ACK)			o	
24	DATA LOAD ERROR (NAK)			o	
67	CHORD				

Transmitted when

R : Request message is received

D : Data dump from Global mode (Doesn't respond to Exclusive ENA,DIS)

E : Exclusive message is received

C : Mode or No. is changed by switch

Some Request Messages are not received in some modes. See 2-6.

* When transmitting a series of exclusive messages to the C-900, wait until [DATA LOAD COMPLETED] or [WRITE COMPLETED] is received.

*4 : Transmitted when Mode is changed.

*5 : Transmitted when editing drum kit's parameters in GLOBAL mode.

2. RECOGNIZED RECEIVE DATA

2-1 CHANNEL MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description	ENA
1000 nnnn (8n)	0kkk kkkk (kk)	0xxx xxxx (xx)	Note Off	A
1001 nnnn (9n)	0kkk kkkk (kk)	0000 0000 (00)	Note Off	A
1001 nnnn (9n)	0kkk kkkk (kk)	0vvv vvvv (vv)	Note On	A
		vvv vvvv=1..127		
1010 nnnn (An)	0kkk kkkk (kk)	0vvv vvvv (vv)	Poly Key Pressure (For Seq.Recording)	T,Q
1011 nnnn (Bn)	0000 0000 (00)	0mmm mmmm (mm)	Bank Select(MSB)	*1 P
1011 nnnn (Bn)	0000 0001 (01)	0vvv vvvv (vv)	Modulation1 Depth (Pitch Modulation)	C
1011 nnnn (Bn)	0000 0010 (02)	0vvv vvvv (vv)	Modulation2 Depth (Cutoff Modulation)	C
1011 nnnn (Bn)	0000 0100 (04)	00vv vvvv(<40)	Foot Pedal Off (Select Main Scale)	C
1011 nnnn (Bn)	0000 0100 (04)	01vv vvvv(>3F)	Foot Pedal On (Select Sub Scale)	C
1011 nnnn (Bn)	0000 0110 (06)	0vvv vvvv (vv)	Data Entry (MSB) (For RPN Edit)	C
1011 nnnn (Bn)	0000 0111 (07)	0vvv vvvv (vv)	Volume	C
1011 nnnn (Bn)	0000 1010 (0A)	0vvv vvvv (vv)	Panpot (A:B Panpot)	C
1011 nnnn (Bn)	0000 1011 (0B)	0vvv vvvv (vv)	Expression	C
1011 gggg (Bg)	0000 1100 (0C)	0vvv vvvv (vv)	Effect Control (Dyna Mod Src= PEDAL1)	C
1011 gggg (Bg)	0000 1101 (0D)	0vvv vvvv (vv)	Effect Control (Dyna Mod Src= PEDAL2)	C
1011 nnnn (Bn)	0010 0000 (20)	0111 1111 (11)	Bank Select(LSB)	*1 P
1011 nnnn (Bn)	0010 0110 (26)	0vvv vvvv (vv)	Data Entry (LSB) (For RPN Edit)	C
1011 nnnn (Bn)	0100 0000 (40)	00xx xxxx(<40)	Hold1 Off (Damper Off)	C
1011 nnnn (Bn)	0100 0000 (40)	01xx xxxx(>3F)	Hold1 On (Damper On)	C
1011 nnnn (Bn)	0100 1000 (48)	0vvv vvvv (vv)	Release Time (Perf Edit Rel Time)	*4 C
1011 nnnn (Bn)	0100 1000 (49)	0vvv vvvv (vv)	Attack Time (Perf Edit Atk Time)	*4 C
1011 nnnn (Bn)	0100 1000 (4A)	0vvv vvvv (vv)	Brightness (Perf Edit Cutoff)	*4 C
1011 nnnn (Bn)	0101 1011 (5B)	0vvv vvvv (vv)	Reverb Level (Send C Level)	C
1011 gggg (Bg)	0101 1100 (5C)	0000 0000 (00)	Effect1 Level (FX1 Off)	C
1011 gggg (Bg)	0101 1100 (5C)	0xxx xxxx(>00)	Effect1 Level (FX1 On)	C
1011 nnnn (Bn)	0101 1101 (5D)	0vvv vvvv (vv)	Chorus Level (Send D Level)	C
1011 gggg (Bg)	0101 1110 (5E)	0000 0000 (00)	Effect2 Level (FX2 Off)	C
1011 gggg (Bg)	0101 1110 (5E)	0xxx xxxx(>00)	Effect2 Level (FX2 On)	C
1011 nnnn (Bn)	0110 0000 (60)	0000 0000 (00)	DATA Increment (For RPN Edit)	C
1011 nnnn (Bn)	0110 0001 (61)	0000 0000 (00)	DATA Decrement (For RPN Edit)	C
1011 nnnn (Bn)	0110 0100 (64)	0000 00rr (0r)	RPN Parameter No.(LSB)	*3 A
1011 nnnn (Bn)	0110 0101 (65)	0000 0000 (00)	RPN Parameter No.(MSB)	*3 A
1011 nnnn (Bn)	0111 1000 (78)	0000 0000 (00)	All Sound Off	C
1011 nnnn (Bn)	0111 1001 (79)	0000 0000 (00)	Reset All Controllers	C
1011 nnnn (Bn)	0ccc cccc (cc)	0vvv vvvv (vv)	Control Data (For Seq.Recording)	C,Q
		ccc cccc=00..127		
1011 gggg (Bg)	0111 1010 (7A)	0000 0000 (00)	Local Control Off	A
1011 gggg (Bg)	0111 1010 (7A)	0111 1111 (7F)	Local Control On	A
1011 nnnn (Bn)	0111 1011 (7B)	0000 0000 (00)	All Notes Off	A
1011 nnnn (Bn)	0111 110x (7x)	0000 0000 (00)	Omni Mode Off/On (All Notes Off)	A
1011 nnnn (Bn)	0111 1110 (7E)	000m mmmm(<11)	Mono Mode On (All Notes Off)	A
		m mmmm=0..16		
1011 nnnn (Bn)	0111 1111 (7F)	0000 0000 (00)	Poly mode On (All Notes Off)	A
1100 nnnn (Cn)	0ppp pppp (pp)	---- ----	Program Change (Prog,Comb CHG)	*1,2 P
1101 nnnn (Dn)	0vvv vvvv (vv)	---- ----	Channel Pressure (Aftertouch)	T
1110 nnnn (En)	0bbb bbbb (bb)	0bbb bbbb (bb)	Bender Change (Pitch Bend)	C

nnnn : MIDI Channel No.(0-15) Usually Global Channel.

When in SONG Mode, each track's channel.

gggg : Always Global Channel No.(0-15)

x : Don't care

ENA : Same as TRANSMITTED DATA

*1 : MIDI In (Hex): Program
 mm,ll,pp = 00,00,00..7F : BANK 0(GM)
 38,00,00..7F : BANK 0(GM)
 00,01,00..7F : BANK 1
 00,02,00..7F : BANK 2
 00,03,00..7F : BANK 3
 00,04,00..7F : BANK 4

*2 : After processing (while Exclusive = ENA) transmits exclusive message [DATA LOAD COMPLETED]
 or [DATA LOAD ERROR].

*3 : rr = 0 : Pitch Bend Sensitivity
 = 1 : Fine Tune (When Received Ch = Global Ch, Master Tune)
 = 2 : Coarse Tune (Transpose)

*4 : vv < 40: Fast or Dark

= 40: No change
> 40: Slow or Bright

2-2 SYSTEM COMMON MESSAGES

Status (Hex)	Second (Hex)	Third (Hex)	Description
1111 0010 (F2)	0sss ssss (ss)	0ttt tttt (tt)	Song Position Pointer
1111 0011 (F3)	000s ssss (ss)	----	Song Select

Received when in SONG mode (External Clock)

2-3 SYSTEM REALTIME MESSAGES

Status (Hex)	Description
1111 1000 (F8)	Timing Clock *5
1111 1010 (FA)	Start *5
1111 1011 (FB)	Continue *5
1111 1100 (FC)	Stop *5
1111 1110 (FE)	Active Sensing

*5 : Received when in SONG mode (External Clock)

2-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (NON REALTIME)

Byte (Hex)	Description
1111 0000 (F0)	EXCLUSIVE STATUS
0111 1110 (7E)	NON REALTIME MESSAGE
0ggg gggg (gg)	MIDI CHANNEL *6
0000 aaaa (0a)	SUB ID 1 *7
0000 00bb (0b)	SUB ID 2 *7
1111 0111 (F7)	END OF EXCLUSIVE

*6 : gg = 0..F : Received if Global Channel
= 7F : Received on any Channel

*7 : a,b = 06,01 : INQUIRY MESSAGE REQUEST
= 09,01 : GENERAL MIDI MODE ON
(Received anytime except when Seq playing/recording, or when DATA FILER page is selected)

2-5 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (REALTIME)

Byte (Hex)	Description
1111 0000 (F0)	EXCLUSIVE STATUS
0111 1111 (7F)	REALTIME MESSAGE
0ggg gggg (gg)	MIDI CHANNEL *6
0000 0100 (04)	SUB ID 1
0000 00bb (0b)	SUB ID 2 *8
0vvv vvvv (vv)	VALUE(LSB) *8
0mmmm mmmm (mm)	VALUE(MSB) *8
1111 0111 (F7)	END OF EXCLUSIVE

*8 : b = 01 : MASTER VOLUME (mm,vv = 00,00..7F,7F : Min..Max)
= 02 : MASTER BALANCE (mm,vv = 00,00..40,00..7F,7F : L..Center..R)

2-6 SYSTEM EXCLUSIVE MESSAGES

* Not received when Sequencer is playing, recording, or when the DATA FILER page is selected.

Function Code List

Func	Description	G	A	No.
12	MODE REQUEST	o	o	42
1C	ALL PROGRAM PARAMETER DUMP REQUEST	A	o	4C
30	ALL ARRANGEMENT PARAMETER DUMP REQUEST	A	o	64
31	ALL STYLE DATA DUMP REQUEST	A	o	65
32	ALL BACKING SEQUENCE DATA DUMP REQUEST	A	o	66
0E	GLOBAL DATA DUMP REQUEST	A	o	51
0D	DRUMS DATA DUMP REQUEST	A	o	52
0F	ALL DATA (GLB,DRM,PRG,ARR,STY,SEQ,BSQ)DUMP REQ	A	o	50
4C	ALL PROGRAM PARAMETER DUMP	A	o	23

64	ALL ARRANGEMENT PARAMETER DUMP	A	o	23
65	ALL STYLE DATA DUMP	A	o	23
66	ALL BACKING SEQUENCE DATA DUMP	A	o	23
51	GLOBAL DATA DUMP	A	o	23
52	DRUMS DATA DUMP	A	o	23
50	ALL DATA(GLB,DRM,PRG,ARR,STY,SEQ,BSQ) DUMP	A	o	23
4E	MODE CHANGE	o	o	23
41	PARAMETER CHANGE			23
53	DRUM KIT PARAMETER CHANGE	o		23
67	CHORD	o	o	

Received when in

G : GLOBAL Mode

(A=Does not respond to Exclusive ENA, DIS on DATA DUMP page)

A :any other mode

No.: MIDI Out Function No.

(transmitted after the message has been received.)

3. MIDI EXCLUSIVE FORMAT (R:Receive, T:Transmit)

See 1-5 'STRUCTURE OF KORG SYSTEM EXCLUSIVE MESSAGES'

(1) MODE REQUEST R

Byte	Description	
F0,42,3g,39	EXCLUSIVE HEADER	
0001 0010 (12)	MODE REQUEST	12H
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=42 message.

(2) ALL PROGRAM PARAMETER DUMP REQUEST R

Byte	Description	
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0001 1100 (1C)	ALL PROGRAM PARAMETER DUMP REQUEST	1CH
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=4C or Func=24 message.

(3) ALL ARRANGEMENT PARAMETER DUMP REQUEST R

Byte	Description	
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0011 0000 (30)	ALL ARRANGEMENT PARAMETER DUMP REQUEST	30H
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=64 or Func=24 message.

(4) ALL STYLE DATA DUMP REQUEST R

Byte	Description	
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0011 0001 (31)	ALL STYLE DATA DUMP REQUEST	31H
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=65 or Func=24 message.

(5) ALL BACKING SEQUENCE DATA DUMP REQUEST R

Byte	Description	
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0011 0010 (32)	ALL BACKING SEQUENCE DATA DUMP REQUEST	32H
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=66 or Func=24 message.

(6) GLOBAL DATA DUMP REQUEST R

Byte	Description	
------	-------------	--

+-----+		
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0000 1110 (0E)	GLOBAL DATA DUMP REQUEST	0EH
1111 0111 (F7)	EOX	
+-----+		

Receives this message, and transmits Func=51 or Func=24 message.

(7) DRUMS DATA DUMP REQUEST R

+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0000 1101 (0D)	DRUMS DATA DUMP REQUEST	0DH
1111 0111 (F7)	EOX	
+-----+		

Receives this message, and transmits Func=52 or Func=24 message.

(8) ALL DATA (GLB,DRM,PRG,ARR,STY,SEQ,BSQ) DUMP REQUEST R

+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0000 1111 (0F)	ALL DATA DUMP REQUEST	0FH
1111 0111 (F7)	EOX	
+-----+		

Receives this message, and transmits Func=50 or Func=24 message.

(9) ALL PROGRAM PARAMETER DUMP R,T

+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0100 1100 (4C)	ALL PROGRAM PARAMETER DUMP	4CH
0ddd dddd (dd)	Data	(NOTE 1,3)
:	:	
1111 0111 (F7)	EOX	
+-----+		

Receives this message & data, and transmits Func=23 or Func=24 message.

Receives Func=1C message, and transmits this message & data.

(10) ALL ARRANGEMENT PARAMETER DUMP R,T

+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0110 0100 (64)	ALL ARRANGEMENT PARAMETER DUMP	64H
0ddd dddd (dd)	Data	(NOTE1,4)
:	:	
1111 0111 (F7)	EOX	
+-----+		

Receives this message & data, and transmits Func=23 or Func=24 message.

Receives Func=30 message, and transmits this message & data.

Transmits this message & data when DATA DUMP is executed

(11) ALL STYLE DATA DUMP R,T

+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0110 0101 (65)	ALL STYLE DATA DUMP	65H
0ddd dddd (dd)	Style Header	(NOTE 1,5-1)
:	:	
0ddd dddd (dd)	Style Data	(NOTE 1,5-2)
:	:	
1111 0111 (F7)	EOX	
+-----+		

Receives this message & data, and transmits Func=23 or Func=24 message.

Receives Func=31 message, and transmits this message & data.

(12) ALL BACKING SEQUENCE DATA DUMP R,T

+-----+		
Byte	Description	
+-----+		
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0110 0110 (66)	ALL BACKING SEQUENCE DATA DUMP	66H
0sss ssss (ss)	Backing Sequence Data Size	(NOTE 7-1)
:	:	
0ddd dddd (dd)	Control Data	(NOTE 1,7-2)
+-----+		

:	:
0ddd dddd (dd)	Backing Sequence Data (NOTE 1,7-3)
:	:
1111 0111 (F7)	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
 Receives Func=32 message, and transmits this message & data.
 Transmits this message & data when DATA DUMP is executed.

(13) GLOBAL DATA DUMP R,T

Byte	Description
F0,42,3g,39(43)	EXCLUSIVE HEADER
0101 0001 (51)	GLOBAL DATA DUMP 51H
0ddd dddd (dd)	Data (NOTE 1,8)
:	:
1111 0111 (F7)	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
 Receives Func=0E message, and transmits this message & data.
 Transmits this message & data when DATA DUMP is executed.

(14) DRUMS DATA DUMP R,T

Byte	Description
F0,42,3g,39(43)	EXCLUSIVE HEADER
0101 0010 (52)	DRUMS DATA DUMP 52H
0ddd dddd (dd)	Data (NOTE 1,9)
:	:
1111 0111 (F7)	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
 Receives Func=0D message, and transmits this message & data.
 Transmits this message & data when DATA DUMP is executed.

(15) ALL DATA(GLB,DRM,PRG,ARR,STY,SEQ,BSQ) DUMP R,T

Byte	Description
F0,42,3g,39(43)	EXCLUSIVE HEADER
0101 0000 (50)	ALL DATA DUMP 50H
0sss ssss (ss)	Sequence Data Size (NOTE 6-1)
:	:
0sss ssss (ss)	Backing Sequence Data Size (NOTE 7-1)
:	:
0ddd dddd (dd)	Data (NOTE 1,10)
:	:
1111 0111 (F7)	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
 Receives Func=0F message, and transmits this message & data.
 Transmits this message & data when DATA DUMP is executed.

(16) MODE CHANGE R,T

Byte	Description
F0,42,3g,39	EXCLUSIVE HEADER
0100 1110 (4E)	MODE CHANGE 4EH
0000 mmmm (0m)	Mode Data (NOTE 11)
1111 0111 (F7)	EOX

Receives this message & data, changes the Mode, and transmits Func=23 or Func=24.
 When the mode is changed by switch, this message & data is transmitted.

(17) PARAMETER CHANGE R

Byte	Description
F0,42,3g,3C	EXCLUSIVE HEADER
0100 0001 (41)	PARAMETER CHANGE 41H
0ppp pppp (pp)	Parameter No. (TABLE 8)
0vvv vvvv (vv)	Value (LSB bit6-0) (NOTE 12)
0vvv vvvv (vv)	Value (MSB bit13-7) (NOTE 12)
1111 0111 (F7)	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.
When the Parameter No. is changed by switch, this message & data is transmitted.

(18) DRUM KIT PARAMETER CHANGE		R,T
Byte	Description	
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0101 0011 (53)	DRUM KIT PARAMETER CHANGE	53H
0000 000k (0k)	Drum Kit No.	(NOTE 14)
00ss ssss (ss)	Index No.(ss=00..59)	
0000 pppp (0p)	Parameter No.	(TABLE 9)
0vvv vvvv (vv)	Value (LSB bit6-0)	(NOTE 12)
0vvv vvvv (vv)	Value (MSB bit13-7)	(NOTE 12)
1111 0111 (F7)	EOX	

Receives this message & data, and transmits Func=23 or Func=24 message.

(19) MODE DATA		T
Byte	Description	
F0,42,3g,39	EXCLUSIVE HEADER	
0100 0010 (42)	MODE DATA	42H
0000 mmmm (0m)	Mode Data	(NOTE 11)
0000 0000 (00)		
1111 0111 (F7)	EOX	

Receives Func=12 message, and transmits this message & data.

(20) MIDI IN DATA FORMAT ERROR		T
Byte	Description	
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0010 0110 (26)	MIDI IN DATA FORMAT ERROR	26H
1111 0111 (F7)	EOX	

Transmits this message when there is an error in the MIDI IN message (for example, if data length is other than expected).

(21) DATA LOAD COMPLETED (ACK)		T
Byte	Description	
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0010 0011 (23)	DATA LOAD COMPLETED	23H
1111 0111 (F7)	EOX	

Transmits this message when DATA LOADING and PROCESSING have been completed.

(22) DATA LOAD ERROR (NAK)		T
Byte	Description	
F0,42,3g,39(43)	EXCLUSIVE HEADER	
0010 0100 (24)	DATA LOAD ERROR	24H
1111 0111 (F7)	EOX	

Transmits this message when DATA LOADING and PROCESSING have not been completed (for example, if memory is protected).

(23) CHORD		R,T
Byte	Description	
F0,42,3g,39	EXCLUSIVE HEADER	
0110 0111 (67)	CHORD	67H
0000 rrrr (0r)	Root (C=0)	
0000 bbbb (0b)	Bass (C=0)	
0ccc cccc (cc)	Chord type (LSB)	(NOTE 15)
000c cccc (cc)	Chord type (MSB)	(NOTE 15)
0ttt tttt (tt)	Tension note(s) (LSB)	(NOTE 16)
000t tttt (tt)	Tension note(s) (MSB)	(NOTE 16)
1111 0111 (F7)	EOX	


```

NOTE 1 : DATA CONVERT METHOD (INTERNAL DATA<-->MIDI DATA)
        (for NOTE 2, 3, 4, 5-1, 5-2, 6-2, 6-3, 7-2, 7-3, 8, 9, 10)
        Internal 7byte data <--convert--> MIDI 8 byte data
        example) Internal data(bit image) MIDI data(bit image)
                Aaaaaaaa      0ABCDEFGG
                Bbbbbbbb      0aaaaaaa
                Cccccccc      0bbbbbbb
                Dddddddd      0ccccccc
                Eeeeeeee      0ddddd
                Ffffffff      0eeeeeee
                Gggggggg      0ffffff
                Hhhhhhhh      0ggggggg
                Iiiiiiii      0HIJKLMN
                :              0hhhhhhh
                :              :
                Vvvvvvvv      0VW00000
                Wwwwwwww      0vvvvvvv
                        0wwwwww
                        11110111 (EOX=7FH)

```

NOTE 2 : PROGRAM PARAMETER DUMP FORMAT (See TABLE 1, NOTE 1)
 [Parameter No.00], .. ,[Parameter No.163]

NOTE 3 : ALL PROGRAM PARAMETER DUMP FORMAT (See TABLE 1, NOTE 2)
 [Prog.D11(164Byte)], .. ,[Prog.D88(164Byte)],
 [Prog.Dr7(164Byte)], [Prog.Dr8(164Byte)]

NOTE 4 : ALL ARRANGEMENT PARAMETER DUMP FORMAT (See TABLE 5, NOTE 1)
 [ARR11(131Byte)], .. ,[ARR88(131Byte)]

NOTE 5 : ALL STYLE DATA DUMP FORMAT

5-1: Style Header (See TABLE 6-3, NOTE 1)
 5-2: Style Data (See TABLE 6-1, TABLE 6-2, NOTE 1)

NOTE 6 : SEQUENCE DATA DUMP FORMAT

6-1: Sequence Data Size (2Byte) 4Step(16Byte)/1Size (See 6-3)
 [Data Size (bit6..0)],
 [Data Size (bit13..7)]

6-2: Control Data Dump Format (3702Byte) (See TABLE 4-1, NOTE 1)
 [Control Data (Song Size(296) x 10 = 2960Byte)],
 [Pattern Data (200Byte)],
 [Song0-Tr.1 Addr (2Byte)], .. ,[Song0-Tr.16 Addr],[Song0-Tempo Track Addr],
 [Song1-Tr.1 Addr], .. ,[Song9-Tr.16 Addr],[Song9-Tempo Track Addr] (340Byte),
 [Pattern0 Addr (2Byte)], .. ,[Pattern99 Addr] (200Byte),
 [Pattern End Addr(2Byte)]

6-3: Sequence Data Dump Format (See TABLE 4-2, NOTE 1)
 [Sequence 1st Data(4Byte)], .. ,[Seq.nth Data]

NOTE 7 : ALL BACKING SEQUENCE DATA DUMP FORMAT

7-1: Backing Sequence Data Size (2Byte) 4Step(16Byte)/1Size (See 7-3)
 [Data Size (bit6..0)],
 [Data Size (bit13..7)]

7-2: Control Data Dump Format (2292Byte) (See TABLE 7-1, NOTE 1)
 [Control Data (BSQ Size(195) x 10 = 1950Byte)],
 [BSQ0-Tr.1 Addr (2Byte)], .. ,[BSQ0-Tr.16 Addr],[BSQ0-Tempo Track Addr],
 [BSQ1-Tr.1 Addr], .. ,[BSQ9-Tr.16 Addr],[BSQ9-Tempo Track Addr] (340Byte),
 [End Addr (2Byte)]

7-3: Backing Sequence Data Dump Format (See TABLE 7-2, NOTE 1)
 [B.Sequence 1st Data(4Byte)], .. ,[BSQ nth Data]
 n : BSQ Data Step = 0 - 40000

NOTE 8 : GLOBAL DATA DUMP FORMAT (See TABLE 2, NOTE 1)
 [Global Data (28Byte)]

NOTE 9 : DRUMS DATA DUMP FORMAT (See TABLE 3, NOTE 1)
 [Drum Kit Data (7x60x2Byte)]

NOTE 10 : ALL DATA (GLB,DRM,PRG,ARR,STY,SEQ,BSQ) DUMP FORMAT
 [Global Data],
 [Drums Data],
 [All Program Parameters],
 [All Arrangement Parameters],
 [All Style Data],
 [All Sequence Data(dummy)]
 [All Backing Sequence Data]

(See NOTE 1)
 (See NOTE 8)
 (See NOTE 9)
 (See NOTE 3)
 (See NOTE 4)
 (See NOTE 5)
 (See NOTE 6-2, 6-3)
 (See NOTE 7-2, 7-3)

NOTE 11 : mmmm = 4 : GLOBAL 6 : SONG
 10 : ARRANGEMENT 11 : BACKING SEQUENCE

NOTE 12 : VALUE DATA FORMAT (Use with PARAMETER CHANGE,DRUM KIT PARAMETER CHANGE)

Bit15-13 of Value Data is the Sign Flag, and each bit has the same value
 Value Data SSSHHHHH LLLLLLLL (S=Sign H,L=13bit data)
 MIDI Data 0SHHHHHL 0LLLLLLL

NOTE 13 : kk = 00: Drum Kit 1
 01: Drum Kit 2

NOTE 14 : CHORD TYPE

Type	MSB	LSB
No Chord	0000 0000	0000 0000
dim	0000 0000	0100 1001
sus2	0000 0001	0000 0101
m	0000 0001	0000 1001
major	0000 0001	0001 0001
sus4	0000 0001	0010 0001
aug	0000 0010	0001 0001
m6	0000 0101	0000 1001
6	0000 0101	0001 0001
m7b5	0000 1000	0100 1001
7b5	0000 1000	0101 0001
m7	0000 1001	0000 1001
7	0000 1001	0001 0001
7sus4	0000 1001	0010 0001
aug7	0000 1010	0001 0001
dimM7	0001 0000	0100 1001
M7b5	0001 0000	0101 0001
mM7	0001 0001	0000 1001
M7	0001 0001	0001 0001
M7sus4	0001 0001	0010 0001
augM7	0001 0010	0001 0001

NOTE 15 : TENSION NOTE(S)

Tension	MSB	LSB
Flatted 9th	0000 0000	0000 0010
9th	0000 0000	0000 0100
Sharped 9th	0000 0000	0000 1000
11th	0000 0000	0010 0000
Sharped 11th	0000 0000	0100 0000
Flatted 13th	0000 0010	0000 0000
13th	0000 0100	0000 0000

PROGRAM PARAMETERS (TABLE 1)

No.	PARAMETER	DATA(Hex) : VALUE	VDF-1
00	PROGRAM NAME (Head)	20..7F : ' '..<-'	50 CUTOFF VALUE 00..63 : 00..99
:	:	:	51 KBD TRACK KEY 00..7F : C-1..G9
09	PROGRAM NAME (Tail)		52 CUTOFF KBD TRACK 9D..63 : -99..99
	OSCILLATOR		53 EG INTENSITY 00..63 : 00..99
10	OSCILLATOR MODE	0,1,2 *1	54 EG TIME KBD TRACK 00..63 : 00..99
	ASSIGN	bit0=0:POL, =1:MON	55 EG TIME VEL.SENSE 00..63 : 00..99
11			

	HOLD	bit1=0:OFF, =1:ON	56	EG INT.VEL.SENSE	9D..63 : -99..99
12	OSC-1 M/D.SOUND(LSB)	0..???? : 0..????		VDF-1 EG	
13	OSC-1 M/D.SOUND(MSB)	*14	57	ATTACK TIME	00..63 : 00..99
14	OSC-1 OCTAVE	FE..01 : 32'..4'	58	ATTACK LEVEL	9D..63 : -99..99
15	OSC-2 M/D.SOUND(LSB)	0..???? : 0..????	59	DECAY TIME	00..63 : 00..99
16	OSC-2 M/D.SOUND(MSB)	*14	60	BREAK POINT	9D..63 : -99..99
17	OSC-2 OCTAVE	FE..01 : 32'..4'	61	SLOPE TIME	00..63 : 00..99
18	INTERVAL	F4..0C : -12..12	62	SUSTAIN LEVEL	9D..63 : -99..99
19	DETUNE	CE..32 : -50..50	63	RELEASE TIME	00..63 : 00..99
20	DELAY START	00..63 : 00..99	64	RELEASE LEVEL	9D..63 : -99..99
	PITCH EG			VDA-1	
21	START LEVEL	9D..63 : -99..99	65	OSCILLATOR LEVEL	00..63 : 00..99
22	ATTACK TIME	00..63 : 00..99	66	KBD TRACK KEY	00..7F : C-1..G9
23	ATTACK LEVEL	9D..63 : -99..99	67	AMP. KBD TRACK INT.	9D..63 : -99..99
24	DECAY TIME	00..63 : 00..99	68	AMP. VELOCITY SENSE	9D..63 : -99..99
25	RELEASE TIME	00..63 : 00..99	69	EG TIME KBD TRACK	00..63 : 00..99
26	RELEASE LEVEL	9D..63 : -99..99	70	EG TIME VEL.SENSE	00..63 : 00..99
27	TIME VELOCITY SENSE	9D..63 : -99..99		VDA-1 EG	
28	LEVEL VELOCITY SENSE	9D..63 : -99..99	71	ATTACK TIME	00..63 : 00..99
	CUTOFF MG		72	ATTACK LEVEL	00..63 : 00..99
	WAVEFORM	bit0..2 : 0..5 *2	73	DECAY TIME	00..63 : 00..99
29	OSC-1 MG ENABLE	bit5=0:OFF, =1:ON	74	BREAK POINT	00..63 : 00..99
	OSC-2 MG ENABLE	bit6=0:OFF, =1:ON	75	SLOPE TIME	00..63 : 00..99
	KEY SYNC	bit7=0:OFF, =1:ON	76	SUSTAIN LEVEL	00..63 : 00..99
30	FREQUENCY	00..63 : 00..99	77	RELEASE TIME	00..63 : 00..99
31	DELAY	00..63 : 00..99		OSC-1 EG TIME KBD TRACK, VEL. SW & POLARITY	
32	INTENSITY	00..63 : 00..99	78	F.EG TIME K.T SW&POL	bit0..7 *3
	AFTERTOUCH		79	F.EG TIME VEL.SW&POL	bit0..7 *3
33	PITCH BEND RANGE	F4..0C : -12..12	80	A.EG TIME K.T SW&POL	bit0..7 *3
34	VDF CUTOFF	9D..63 : -99..99	81	A.EG TIME VEL.SW&POL	bit0..7 *3
35	VDF MG INT	00..63 : 00..99		OSC-1 SEND	
36	VDA AMPLITUDE	9D..63 : -99..99		D SEND LEVEL	bit0..3 : 0..9
	JOYSTICK		82	C SEND LEVEL	bit4..7 : 0..9
37	PITCH BEND RANGE	F4..0C : -12..12		COLOR-1	
38	VDF SWEEP INT.	9D..63 : -99..99	83	INTENSITY	00..63 : 00..99
39	VDF MG INT.	00..63 : 00..99	84	VELOCITY SENSE	9D..63 : -99..99
	OSC-1 PITCH EG			VDF-1, VDA-1 KBD TRACK MODE	
40	PITCH EG INT	9D..63 : -99..99	85	F-1, A-1 KBD TRACK MODE	*4
	OSC-1 PITCH MG			OSC-1 PANPOT	

41	WAVEFORM	bit0..2 : 0..5 *2	86	A:B PAN	00..1E,FF	*5
	KEY SYNC	bit7=0:OFF, =1:ON		OSC-2 PARAMETER		
42	FREQUENCY	00..63 : 00..99	87	SAME AS OSC-1(40..86)		
43	DELAY	00..63 : 00..99	:			
44	FADE IN	00..63 : 00..99	133			
45	INTENSITY	00..63 : 00..99	134	(RESERVE)	00	
46	FREQ MOD BY KBD TRK	9D..63 : -99..99		EFFECT PARAMETER		
47	INTENSITY MOD BY AT	00..63 : 00..99	135			
48	INTENSITY MOD BY JS	00..63 : 00..99	:			*20
49	FREQ MOD BY AT+JS	00..09 : 0..9	163			

GLOBAL PARAMETERS (TABLE 2)

No.	PARAMETER	DATA(Hex) : VALUE
GLOBAL PARAMETER		
00	MASTER TUNE	CE..32 : -50..50
01	KEY TRANSPOSE	F4..0C : -12..12
02	DAMPER POLARITY	00 : o, 01 : r
03	ASSIGNABLE PEDAL 1	00..2B *8
04	ASSIGNABLE PEDAL 2	00..2B *8
05	MAIN SCALE TYPE	00..0A *9
06	MAIN SCALE KEY	00..0B : C..B
07	USER SCALE	CE..32 : -50..50
:		
18		
19	VELOCITY CURVE	0..7 : 1..8
20	AFTER TOUCH CURVE	0..7 : 1..8
21	SUB SCALE TYPE	00..0A *9
22	SUB SCALE KEY	00..0B : C..B
23	RESERVE	00
:		
27		

*1 : 0 : SINGLE
1 : DOUBLE
2 : DRUMS

*2 : 0 : TRIANGLE
1 : UP SAW
2 : DOWN SAW
3 : SQUARE1
4 : RANDOM
5 : SQUARE2

*3 : bit0 : ATTACK TIME SW =0:OFF, =1:ON
bit1 : DECAY TIME SW =0:OFF, =1:ON
bit2 : SLOPE TIME SW =0:OFF, =1:ON
bit3 : RELEASE TIME SW =0:OFF, =1:ON
bit4 : ATTACK TIME POLARITY =0:+, =1:-
bit5 : DECAY TIME POLARITY =0:+, =1:-
bit6 : SLOPE TIME POLARITY =0:+, =1:-
bit7 : RELEASE TIME POLARITY =0:+, =1:-

DRUM PARAMETERS (TABLE 3)

No.	PARAMETER	DATA(Hex) : VALUE
DRUM KIT 1-INDEX #0		
00	INST NO.	00:OFF, 01:..INT
01	KEY	0C..73 : C0..G8
02	A:B PAN	bit0..4 *10
	EXCLUSIVE ASSIGN	bit5..7 *10
03	TUNE	88..78 : -120..120
04	LEVEL	9D..63 : -99..99
05	DECAY	9D..63 : -99..99

*4 : bit0,1 .. VDF +--
 0 : OFF
 1 : LOW
 2 : HIGH
 3 : ALL
bit4,5 .. VDA +--

*5 : 00 : L15

06	D SEND LEVEL	bit0..3: 0..9
	C SEND LEVEL	bit4..7: 0..9
DRUM KIT 1-INDEX #1 .. DRUM KIT 2-#59		
07	SAME AS DRUM KIT 1-#0(00..06)x(60x2-1)	
:		
839		

```

:
OF : CNT
:
1E : R15
1F : PRG (When in SONG Mode)
FF : OFF

```

```

*6 : A11 ..A88 : 00..3F
    B11 ..B88 : 40..7F
    Dr11..Dr16: 80..85
    C11 ..C88 : 86..C5
    U11 ..U88 : 00..3F
    Dr17..Dr18: 40..41

```

```

*7 : bit0 : PROGRAM CHANGE =0:DIS, =1:ENA
    bit1 : DAMPER           =0:DIS, =1:ENA
    bit2 : AFTERTOUCH      =0:DIS, =1:ENA
    bit3 : CONTROL CHANGE  =0:DIS, =1:ENA

```

```

bit7=1 : A11 ..A88
        : B11 ..B88
        : Dr11..Dr16
        : C11 ..C88
        =0 : U11 ..U88
        : Dr17..Dr18

```

Program is selected by *6 and *7(bit7)

SEQUENCER CONTROL DATA (TABLE 4-1)

No.	PARAMETER	DATA(Hex) : VALUE	PATTERN 0 PARAMETERS
SONG 0 CONTROL DATA			2960 BEAT *12
00	MIDI Channel(Tr.1)	00..0F : 1..16	2961 LENGTH 01..63 : 1..99
:	:	:	PATTERN 1..99 PARAMETERS
15	MIDI Channel(Tr.16)		2962 SAME AS PATTERN 0(2960,2961) x 99
16	STATUS (Tr.1)	*11	:
:	:	:	3159
31	STATUS (Tr.16)		SONG 0, TRACK 1 DATA ADDRESS
32	BEND RANGE (Tr.1)	00..0C : 00..12	3160 DATA ADDRESS (LSB) 0000 (Start Addr)
:	:	:	3161 DATA ADDRESS (MSB)
47	BEND RANGE (Tr.16)		SONG 0, TRACK 2 .. TRACK 16 DATA ADDRESS
48	BEAT	*12	3162 SAME AS SONG 0, TRACK 1 ADDRESS(3160,3161) x 15
49	TEMPO	28..F0 : 40..240	:
	PROTECT (Tr.1)	bit0=0:OFF, =1:ON	3191
50	:	:	SONG 0, TEMPO TRACK DATA ADDRESS
	PROTECT (Tr.8)	bit7	3192 DATA ADDRESS (LSB)
	PROTECT (Tr.9)	bit0=0:OFF, =1:ON	3193 DATA ADDRESS (MSB)
51	:	:	SONG 1..9 TRACK DATA ADDRESS
	PROTECT (Tr.16)	bit7	3194 SAME AS SONG 0, TRACK ADDRESS (3160..3193) x 9
52	NEXT SONG NO.	*13	:
53	SONG NAME (Head)	20..7F : ' '..<-'	3499
:	:		PATTERN 0 DATA ADDRESS
62	SONG NAME (Tail)		3500 DATA ADDRESS (LSB)
63	(RESERVE)	00	3501 DATA ADDRESS (MSB)
64	EFFECT PARAMETER		PATTERN 1 .. PATTERN 99 DATA ADDRESS

:			*20	3502	SAME AS PATTERN 0(3500,3501)	
92				:		
TRACK 1 CONTROL DATA				3699		
93	PROGRAM NO.		*6	3700	End Pattern Addr(L)	
94	OUTPUT LEVEL	00..7F : 00..127		3701	End Pattern Addr(H)	
95	KEY TRANSPOSE	E8..18 : -24..24				
96	DETUNE	CE..32 : -50..50			SEQUENCE DATA (TABLE 4-2)	
97	A:B PAN	00..1E,1F,FF	*5	No.	PARAMETER	DATA(Hex) : VALUE
	D SEND LEVEL	bit0..3 : 0..9,PRG			SEQUENCE DATA 1	
98	C SEND LEVEL	bit4..7 : 0..9,PRG		3702	DATA (1-L)	*15
99	KEY WINDOW TOP	00..7F : C-1..G9		3703	DATA (1-H)	*15
100	KEY WINDOW BOTTOM	00..7F : C-1..G9		3704	DATA (2-L)	*15
101	VEL WINDOW TOP	01..7F : 01..127		3705	DATA (2-H)	*15
102	VEL WINDOW BOTTOM	01..7F : 01..127			SEQUENCE DATA 2 ..	
103	CONTROL FILTER		*7	3706	SAME AS SEQUENCE DATA 1(3702..3705)	
104	MIDI CHANNEL	00..0F : 1..16		:		
TRACK 2..16 CONTROL DATA						
105	SAME AS TRACK 1(93..104) x 15					
:						
284						
285..290	(RESERVE)	00				
291	METRONOME LEVEL	00..63 : 0..99				
292	METRONOME PAN	00..1E	*5			
293	METRONOME LEAD IN	0..2 : 0..2				
294	TEMPO TRACK ON/OFF	0:OFF, 1:ON				
295	(RESERVE)	00				
SONG 1..9 CONTROL DATA						
296	SAME AS SONG 0 (00..295) x 9					
:						
2959						

*8 : 0 : OFF
 1 : START/STOP
 2 : SYNC START/STOP
 3 : RESET
 4 : INTRO/ENDING 1
 5 : INTRO/ENDING 2
 6 : FILL 1
 7 : FILL 2
 8 : VARIATION 1
 9 : VARIATION 2
 A : VARIATION 3
 B : VARIATION 4
 C : CHORD HOLD
 D : BASS INVERSION
 E : SCALE CHANGE
 F : ARRANGEMENT UP
 10 : ARRANGEMENT DOWN
 11 : PROGRAM UP
 12 : PROGRAM DOWN

```

13 : VARIATION UP
14 : VARIATION DOWN
15 : PUNCH IN/OUT
16 : EFFECT 1 ON/OFF
17 : EFFECT 2 ON/OFF
18 : DRUM MUTE
19 : PERC MUTE
1A : BASS MUTE
1B : ACC1 MUTE
1C : ACC2 MUTE
1D : ACC3 MUTE
1E : KB VOLUME
1F : EXPRESSION
20 : VDF CUTOFF
21 : EFFECT CONTROL
22 : DATA ENTRY
23 : OFF
24 : OFF
25 : KBD LOCK
26 : TAP TEMPO
27 : SOUND HOLD ON/OFF
28 : SUSTAIN ON/OFF
29 : FADE IN/OUT
2A : ENSEMBLE ON/OFF
2B : MASTER VOLUME

*9 : 0 : EQUAL TEMP
    1 : EQUAL TEMP 2
    2 : PURE MAJOR
    3 : PURE MINOR
    4 : ARABIC
    5 : PYTHAGOREAN
    6 : WERKMEISTER
    7 : KIRNBERGER
    8 : SLENDRO
    9 : PELOG
    A : USER SCALE

*10 : bit0..4 = 00 : L15
        :      :
        0F : CNT
        :      :
        1E : R15
        1F : OFF

    bit5..7 = 0 : EX Off
              1 : EX Group1
              :      :
              6 : EX Group6
              7 : Self

*11 : bit0,1= 0 : OFF
        1 : INT
        2 : EXT
        3 : BOTH
    bit2,3= 0 : Play, = 1 : Mute, = 2 : Solo

*12 : bit0..5 10..18 : 1/4 .. 9/4
        20..2F : 1/8 .. 16/8
        30..3F : 1/16 .. 16/16
    bit7 = 0 : High Resolution
          1 : Low Resolution

*13 : bit0..6 = 0 : Song0
        :      :
        9 : Song9

        7F : OFF
    bit7 = 0/1 : Auto Start OFF/ON

*14 : When set to Single/Double Mode
    0000 : A.Piano 1
        :      :
    0153 : DJ Kit 2
    0154 : L)A.Piano3
    0155 : R)A.Piano3
    0156 : A.Piano 3

```

When set to Drum Mode

00 : User Kit 1

: :

07 : Percussion

*15 : SEQUENCE DATA FORMAT

*15-1 NOTE ON/OFF

DATA(1-H) DATA(1-L) DATA(2-H) DATA(2-L)

```
+-----+-----+-----+-----+
|1vvv vvv t|tttt tttt |kkkk kkk g|gggg gggg |
+-----+-----+-----+-----+
```

Velocity Event Time Key No. Length

t : 1/96th quater note unit, t = 1FEH : Tie from previous bar

g : 1/96th quater note unit, g = 1FEH : Tie to next bar

*15-2 PITCH BEND

```
+-----+-----+-----+-----+
|0001 000 t|tttt tttt |0 vvv vvvv|0 vvv vvvv|
+-----+-----+-----+-----+
Event Time Value(H) Value(L)
```

*15-3 AFTER TOUCH

```
+-----+-----+-----+-----+
|0010 000 t|tttt tttt | 0000 0000|0 vvv vvvv|
+-----+-----+-----+-----+
Event Time Value
```

*15-4 PROGRAM CHANGE

```
+-----+-----+-----+-----+
|0011 000 t|tttt tttt | 0000 00bb|0ppp pppp |
+-----+-----+-----+-----+
Event Time Bank Program No.
```

b = 00..02

p = 00..7F

*15-5 CONTROL CHANGE

```
+-----+-----+-----+-----+
|0100 000 t|tttt tttt | 0vvv vvvv|0ccc cccc |
+-----+-----+-----+-----+
Event Time Value Control No.
```

c = 00..65 : Same as MIDI Control Change

= 66 : Assignable Pedal

*15-6 POLY KEY PRESSURE

```
+-----+-----+-----+-----+
|0101 000 t|tttt tttt |0 vvv vvvv|0 kkk kkkk|
+-----+-----+-----+-----+
Event Time Value Key No.
```

*15-7 BAR

```
+-----+-----+-----+-----+
|0110 00bb |bbbb bbbb |xx ss ssss|0ppp pppp |
+-----+-----+-----+-----+
Bar No. Type Beat Pattern No.
```

x = 00 : Pattern not used

= 10 : Pattern continued

= 11 : Pattern start

s = 10..18 : 1/4..9/4

= 20..2F : 1/8..16/8

= 30..3F : 1/16..16/16

*15-8 TRACK END

```
+-----+-----+-----+-----+
|0111 000 t|tttt tttt |0000 00bb |bbbb bbbb |
+-----+-----+-----+-----+
Event Time Last Bar No.
```

ARRANGEMENT PARAMETERS (TABLE 5)

No.	PARAMETER	DATA(Hex) : VALUE	ACC 1..3 PARAMETERS
00	ARRANGE NAME (Head)	20..7F : ' '..<-'	58 SAME AS DRUMS
:	:	:	:
09	ARRANGE NAME (Tail)		81

10	SYTLE NO.	00..37 : 11..68	KBD 1..2 PARAMETERS	
11		: 71..84	82	SAME AS DRUMS
12	INITIAL VARIATION	00..03 : VAR 1..4	:	
13			97	
14	INITIAL TEMPO	0A..D2 : 40..240	KBD1 VELOCITY WINDOW	
15	KEYBOARD ASSIGN	00..03 : *16	98	TOP 01..7F : 1..127
16	SPLIT POINT	24..60 : C2..C7	99	BOTTOM 01..7F : 1..127
17	OCTAVE	FE..02 : -2..+2	KBD2 VELOCITY WINDOW	
18	TRANPOSE	F5..0B : -C#..+B	100	TOP 01..7F : 1..127
19	MANUAL DRUM KIT	00..07 : Dr1..Dr8	101	BOTTOM 01..7F : 1..127
SWITCHES			102	EFFECT PARAMETERS *20
20	DYNAMIC VELOCITY	bit0=0:OFF, =1:ON	:	
	TEMPO LOCK	bit1=0:OFF, =1:ON	130	
	KBD1 DAMPER ENABLE	bit2=0:OFF, =1:ON		
	KBD2 DAMPER ENABLE	bit3=0:OFF, =1:ON		
CHORD SCANNING TYPE			*16	00 : SINGLE
21	CHORD SCAN LOW	bit0=0:OFF, =1:ON		01 : LAYER
	CHORD SCAN HIGH	bit1=0:OFF, =1:ON		02 : SPLIT
	BASS INVERSION	bit2=0:OFF, =1:ON		03 : M.DRUMS
	CHORD HOLD	bit3=0:OFF, =1:ON		
	CHORD LATCH	bit4=0:OFF, =1:ON	*17	BANK = 00..04
22	DEFAULT DRUM MAPPING	00..07 : Dr1..Dr8		PROG = 00..7F
25				
26	RESERVE	00		
29				
30	FILL1	00..0C :OFF..DOWN		
31				
32	FILL2	00..0C :OFF..DOWN		
33				
DRUM PARAMETERS				
34	PROG	*17		
35	BANK			
36	VOL	00..7F : 0..127		
37	PAN	*5		
38	C SEND LEVEL	bit0..3 : 0..9,PRG		
	D SEND LEVEL	bit4..7 : 0..9,PRG		
39	OCTAVE	FE..02 : -2..+2		
40	OUT STATUS	*11		
41	WRAP-AROUND	FF..0B : STY..11		
PERCUSSION PARAMETERS				

42	SAME AS DRUMS	
:		
49		

	BASS PARAMETERS	

50	SAME AS DRUMS	
:		
57		

STYLE CONTROL DATA (TABLE 6-1)

No.	PARAMETER	DATA(Hex) : VALUE	INTRO1 CHORD VARIATION1 PARAMETERS	
00	STYLE NAME (Head)	20..7F : ' '..'<-'	110	KEY *18
:	:	:	111	LENGTH 00..10 : 0..16
09	STYLE NAME (Tail)		INTRO1 CHORD VARIATION2 PARAMETERS	
10	SYTLE TYPE	0.USER CREATED	112	KEY *18
		1.BUILT-IN	113	LENGTH 00..10 : 0..16
		2.CARD OR DISK	INTRO2 PARAMETERS	
11	TEMPO	0A..D2 : 40..240	114	SAME AS INTRO1
12	TIME SIGNATURE	Hi Res only *12	:	
	NOTE RETRIGGER SWITCH		117	
13	BASS	bit2=0:OFF, =1:ON	ENDING 1..2 PARAMETERS	
	ACC1	bit3=0:OFF, =1:ON	118	SAME AS INTRO1
	ACC2	bit4=0:OFF, =1:ON	:	
	ACC3	bit5=0:OFF, =1:ON	125	
	NOTE SHIFT UP RANGE		FILL 1..2 PARAMETERS	
14	BASS	00..0B : 0..11	126	SAME AS INTRO1
15	ACC1	00..0B : 0..11	:	
16	ACC2	00..0B : 0..11	133	
17	ACC3	00..0B : 0..11	VARIATION 1 CHORD VARIATION TABLE	
	TENSION AVAILABLE		134	Major 00..05 : 1..6
18	ACC1	bit3=0:OFF, =1:ON	135	M6 00..05 : 1..6
	ACC2	bit4=0:OFF, =1:ON	136	M7 00..05 : 1..6
	ACC3	bit5=0:OFF, =1:ON	137	M7b5 00..05 : 1..6
19	RESERVE	00	138	sus4 00..05 : 1..6
:			139	sus2 00..05 : 1..6
37			140	M7sus4 00..05 : 1..6
	DRUM PARAMETERS		141	minor 00..05 : 1..6
38	PROG	*17	142	m6 00..05 : 1..6
39	BANK		143	m7 00..05 : 1..6
40	VOL	00..7F : 0..127	144	m7b5 00..05 : 1..6
41	PAN	*5	145	mM7 00..05 : 1..6
	PERCUSSION PARAMETTERS		146	7th 00..05 : 1..6

42	SAME AS DRUMS	147	7b5	00..05 : 1..6
:		148	7sus4	00..05 : 1..6
45		149	dim	00..05 : 1..6
BASS PARAMETERS		150	dimM7	00..05 : 1..6
46	SAME AS DRUMS	151	aug	00..05 : 1..6
:		152	aug7	00..05 : 1..6
49		153	augM7	00..05 : 1..6
ACC 1..3 PARAMETERS		VARIATION 2..4 CHORD VARIATION TABLE		
50	SAME AS DRUMS	154	SAME AS VARIATION1	
:		:		
61		213		
VARIATION1, CHORD VARIATION1 PARAMETERS				
62	KEY	*18	*18 : 00 : C MAJOR	
			01 : C MINOR	
63	LENGTH	00..10 : 0..16	02 : C#MAJOR	
			03 : C#MINOR	
VARIATION1 CHORD VARIATION2..6 PARAMETERS			:	
			16 : B MAJOR	
			17 : B MINOR	
64	SAME AS VARIATION1 CHORD VARIATION1			
:				
73				
VARIATION 2..4 PARAMETERS				
74	SAME AS VARIATION1			
:				
109				

INTRO1 CHORD VARIATION TABLE			VARIATION 2..4 DATA ADDRESS	
214	Major	00..01 : 1..2	546	SAME AS VARIATION1 DATA ADDRESS
215	M6	00..01 : 1..2	:	
216	M7	00..01 : 1..2	581	
217	M7b5	00..01 : 1..2	ENDING 1..2 DATA ADDRESS	
218	sus4	00..01 : 1..2	582	SAME AS VARIATION1 DATA ADDRESS
219	sus2	00..01 : 1..2	:	
220	M7sus4	00..01 : 1..2	605	
221	minor	00..01 : 1..2	FILL 1..2 DATA ADDRESS	
222	m6	00..01 : 1..2	606	SAME AS VARIATION1 DATA ADDRESS
223	m7	00..01 : 1..2	:	
224	m7b5	00..01 : 1..2	629	
225	mM7	00..01 : 1..2	PATTERN 0 DATA ADDRESS	
226	7th	00..01 : 1..2	630	DATA ADDRESS (LSB)
227	7b5	00..01 : 1..2	631	DATA ADDRESS (MSB)
228	7sus4	00..01 : 1..2	PATTERN 1..99 DATA ADDRESS	
229	dim	00..01 : 1..2	632	SAME AS PATTERN 0
230	dimM7	00..01 : 1..2	:	
231	aug	00..01 : 1..2	829	

232	aug7	00..01 : 1..2	830	END PATTERN ADDR(L)	
233	augM7	00..01 : 1..2	831	END PATTERN ADDR(M)	
INTRO2 CHORD VARIATION TABLE					
234	SAME AS INTRO1		STYLE DATA (TABLE 6-2)		
:			No.	PARAMETER	DATA(Hex) : VALUE
253			STYLE 1 DATA		
ENDING 1..2 CHORD VARIATION TABLE			0	DATA (1-L)	*15
254	SAME AS INTRO1		1	DATA (1-H)	*15
:			2	DATA (2-L)	*15
293			3	DATA (2-H)	*15
FILL 1..2 CHORD VARIATION TABLE			STYLE 2 DATA ..		
294	SAME AS INTRO1		4	SAME AS STYLE1	
:			:		
333					
PATTERN 0 CONTROL DATA					
334	BEAT	:	*12	STYLE HEADER (TABLE 6-3)	
335	LENGTH	01..63 : 1..99	No.	PARAMETER	DATA(Hex) : VALUE
PATTERN 1..99 CONTROL DATA			STYLE 1		
336	SAME AS PATTERN 0		0	STYLE1 ADDRESS	
:			:		
533			3		
VARIATION1 ACC1 DATA ADDRESS			4	STYLE1 SIZE	
534	DATA ADDRESS (LSB)		5		
535	DATA ADDRESS (MSB)		STYLE 2..4		
VARIATION1 ACC 2..3 DATA ADDRESS			6	SAME AS STYLE1	
:			:		
536	SAME AS VARIATION1 ACC1 DATA ADDRESS		23		
:					
539					
VARIATION1 BASS, DRUMS, PERC. DATA ADDRESS					
540	SAME AS VARIATION1 DATA ADDRESS				
:					
545					

BACKING SEQUENCE CONTROL DATA (TABLE 7-1)

No	PARAMETER	DATA(Hex) : VALUE	EXTRA TRACK 1 CONTROL DATA		
BSEQ 0 CONTROL DATA			46	PROG	*17
00	BSEQ NAME (Head)	20..7F : '...'<-'	47	BANK	
:	:	:	48	VOL	00..7F : 0..127
09	BSEQ NAME (Tail)		49	PAN	*5
10	ARRANGEMENT NO.	00..3F : 11..88	50	C SEND LEVEL	bit0..3 : 0..9,PRG
11				D SEND LEVEL	bit4..7 : 0..9,PRG
12	STYLE NO.	00..37 : 11..68	51	TRACK STATUS	*11
13		71..84	52	BEND RANGE	00..0C : 00..12

14	VARIATION	00..03 : VAR 1..4	53	KEY TRANSPOSE	E8..18 : -24..24
15			54	DETUNE	CE..32 : -50..50
16	TEMPO	0A..D2 : 40..240	55	PROTECT	: OFF/ON
17	KEYBOARD ASSIGN	*16	56	MIDI CHANNEL	00..0F : 1..16
	CHORD SCANNING TYPE		57	VEL WINDOW TOP	01..7F : 1..127
18	CHORD SCAN LOW	bit0=0:OFF, =1:ON	58	VEL WINDOW BOTTOM	01..7F : 1..127
	CHORD SCAN HIGH	bit1=0:OFF, =1:ON	59	KEY WINDOW TOP	00..7F : C-1..G9
	BASS INVERSION	bit2=0:OFF, =1:ON	60	KEY WINDOW BOTTOM	00..7F : C-1..G9
	CHORD HOLD	bit3=0:OFF, =1:ON	EXTRA TRACK 2..8 CONTROL DATA		
	CHORD LATCH	bit4=0:OFF, =1:ON	61	SAME AS TRACK 1	
19	KBD1 PROG	*17	:		
20	KBD1 BANK		165		
21	KBD1 OCTAVE	FE..02 : -2..+2	166	EFFECT PARAMETER	*20
22	KBD2 PROG	*17	:		
23	KBD2 BANK		194		
24	KBD2 OCTAVE	FE..02 : -2..+2	BSEQ 1..9 CONTROL DATA		
25	KEYBOARD TRK STATUS	*21-1	195	SAME AS BSEQ 0	
26	CONTROL TRK STATUS	*21-1	:		
27	CHORD TRK STATUS	*21-1	1949		
28	AUTOTEMPO	0A..D2 : 40..240	BSEQ TRACK1 DATA ADDRESS		
29	BEAT	Hi Res only *12	1950	DATA ADDRESS (LSB)	
30	SPLIT POINT	24..60 : C2..C7	1951	DATA ADDRESS (MSB)	
31	TRANSPOSE	F5..0B :-C#..+B	BSEQ0 TRACK 2..16 DATA ADDRESS		
	SWITCHES		1952	SAME AS BSEQ0 TRACK1 DATA ADDRESS	
32	DYNAMIC VELOCITY	bit0=0:OFF, =1:ON	:		
33	RESERVE	00	1981		
:				BSEQ0 TEMPO TRACK DATA ADDRESS	
39			1982	SAME AS BSEQ0 TRACK1 DATA ADDRESS	
40	METRONOME SWITCH	*21-2	1983		
41	METRONOME LEVEL	00..63 : 0..99	BSEQ 1..9 DATA ADDRESS		
42	METRONOME PAN	*5	1984	SAME AS BSEQ0 TRACK DATA ADDRESS	
43	METRONOME LEAD-IN	0..2 : 0..2	:		
44	NEXT BSEQ No.	*21-3	2289		
45	AUTO START	*21-4	2290	END ADDRESS (LSB)	
			2291	END ADDRESS (MSB)	

*21-1 : Track Status

00 : MUTE

01 : PLAY

*21-2 : Metronome Switch

00 : OFF

01 : ON

02 : REC

*21-3 : Next BSeq No.

FF : OFF

00 : BSeq 0

:

09 : BSeq 9

*21-4 : Auto Start

00 : OFF

01 : ON

B. SEQUENCE DATA (TABLE 7-2)

No.	PARAMETER	DATA(Hex) : VALUE
BACKING SEQUENCE DATA 1		
0	DATA (1-L)	*19
1	DATA (1-H)	*19
2	DATA (2-L)	*19
3	DATA (2-H)	*19
BACKING SEQUENCE DATA 2..		
4	SAME AS BACKING SEQUENCE DATA 1 (0..3)	
:		

*19-1-1 : 0..55 : P11..P68, U1..U4, C1..C4

*19-1-2 : 0 : Variation1

:

3 : Variation4

4 : Intro1

5 : Intro2

6 : Ending1

7 : Ending2

8 : Fill1

9 : Fill2

*19 : BACKING SEQUENCE DATA FORMAT

*19-1 : BACKING CONTROL EVENT

DATA(1-H) DATA(1-L) DATA(2-H) DATA(2-L)

10ii	iii t	tttt tttt	vvvv vvvv	vvvv vvvv
EventID	EventTime	Value 2	Value 1	

EventID	Value		
0	Arrangement	0..63	11..88
1	Style	0..55	*19-1-1
2	Variation	0..9	*19-1-2
3	Keyboard Assign	0..3	*19-1-3
4	Chord Scan	0..3	*19-1-4
5	Chord Hold	0/1	OFF/ON
6	Bass Inversion	0/1	OFF/ON
7	Transpose	-11..+11	
8	Drum Mute	0/1	MUTE/PLAY
9	Perc.Mute	0/1	MUTE/PLAY
10	Bass Mute	0/1	MUTE/PLAY
11	ACC1 Mute	0/1	MUTE/PLAY
12	ACC2 Mute	0/1	MUTE/PLAY
13	ACC3 Mute	0/1	MUTE/PLAY
14	Drum Map	0..7	1..8
15	KBD1 Prog	V1 = PROG	V2 = BANK

*19-1-3 : 0 : SINGLE

1 : LAYER

2 : SPLIT

3 : M.DRUM

*19-1-4 : 0 : OFF

1 : LOWER

2 : UPPER

3 : FULL

16	KBD2 Prog	V1 = PROG	V2 = BANK
17	KBD1 Octave	-2..+2	
18	KBD2 Octave	-2..+2	

*19-2 : CHORD EVENT

1111	iii	t	tttt	tttt	nnnn	nnnn	bbbb	rrrr
ChordID	EventTime	Tension	Note	Bass	Root			

ChordID = 0 : No Chord

- 1 : Major
- 2 : Major 6th
- 3 : Major 7th
- 4 : Major 7th Flatted 5th
- 5 : Suspended 4th
- 6 : Suspended 2nd
- 7 : Major 7th Suspended 4th
- 8 : Minor
- 9 : Minor 6th
- 10 : Minor 7th
- 11 : Minor 7th Flatted 5th
- 12 : Minor Major 7th
- 13 : Dominant 7th
- 14 : 7th Flatted 5th
- 15 : 7th Suspended 4th
- 16 : Diminished
- 17 : Diminished Major 7th
- 18 : Augmented
- 19 : Augmented 7th
- 20 : Augmented Major 7th

TensionNote = 0000 0001 : Flatted 9th
0000 0010 : 9th
0000 0100 : Sharped 9th
0000 1000 : 11th
0001 0000 : Sharped 11th
0010 0000 : Flatted 13th
0100 0000 : 13th

*20 EFFECT PARAMETERS

No.			PARAMETER		DATA(Hex) : VALUE	13:Stereo Delay, 14:Cross Delay	
(00)	Effect 1 Type No.	0,1..2F:OFF,1..47	(00)	Delay Time L (L)		00..1F4	00..500
(01)	Effect 2 Type No.	0,1..2F:OFF,1..47	(01)	Deray Time L (H)			
(02)	Effect1 L-Ch E.Balnc	00..64 : 00..100	(02)	Feedback		9D..63	-99..99
(03)	Effect1 R-Ch E.Balnc	00..64 : 00..100	(03)	High Damp		00..63	00..99
(04)	Effect2 L-Ch E.Balnc	00..64 : 00..100	(04)	Delay Time R (L)		00..1F4	00..500
(05)	Effect2 R-Ch E.Balnc	00..64 : 00..100	(05)	Delay Time R (H)			
(06)	Output 3 Pan	00,01..65 *20-1	(06)	EQ High		F4..0C	-12..12
(07)	Output 4 Pan	00,01..65 *20-1	(07)	EQ Low		F4..0C	-12..12
15: Dual Delay							
(08)	Effect I/O	bit5..0 *20-2	(00)	Delay Time L (L)			
(09)	Effect 1 Parameters		(01)	Delay Time L (H)		00..1F4	00..500
:		*20-3	(02)	Feedback L		9D..63	-99..99
(16)			(03)	High Damp L		00..63	00..99
(17)	Effect 1 Mod Source	00..0D *20-4	(04)	Delay Time R (L)			
(18)	Effect 1 Mod Amount	F1..0F : -15..15				00..1F4	00..500

			(05)	Delay Time R (H)	
(19)	Effect 2 Parameters		(06)	Feedback R	9D..63 : -99..99
:		*20-3	(07)	High Damp R	00..63 : 00..99
(26)			16..18:Multitap Delay 1,2,3		
(27)	Effect 2 Mod Source	00..0D	(00)	Delay Time A(L)	
(28)	Effect 2 Mod Amount	F1..0F : -15..15			00..1F4: 00..500
*20-1	: 00 : Off	*20-2 :	(01)	Delay Time (H)	
01 :	R	bit0=0:Efct1 L-Ch Off,=1:On	(02)	Delay Time B(L)	
02 :	01:99	bit1=0:Efct1 R-Ch Off,=1:On	(03)	Delay Time (H)	
.	.	bit2=0:Efct2 L-Ch Off,=1:On	(04)	Feed back	9D..63 : -99..99
.	.		(06)	EQ Low	F4..0C : -12..12
64 :	99:01	bit3=0:Efct2 R-Ch Off,=1:On	(07)	EQ High	F4..0C : -12..12
65 :	L	bit4,5=0:Serial	19,20:Stereo Chorus 1,2		
	1:Parallel		(00)	Mod Depth	00..63 : 00..99
	2:Parallel 2		(01)	Mod Speed	00..D8 *20-3-2
	3:Parallel 3				bit0=0:Sin, =1:Tri
*20-3 : Effect Parameters (8Byte) 47 Types			(02)	MG Status	*20-3-3
offset	PARAMETER	DATA(Hex) : VALUE			bit1 <- 1
					bit2 <- 0
1..3:	Hall, (4,5:Room, 6:Live Stage)		(04)	Delay Time	00..C8 : 00..200
(00)	Reverb Time	00..61(2F):0.2..9.9(4.9)	(06)	EQ High	F4..0C : -12..12
(01)	(NUL)	00	(07)	EQ Low	F4..0C : -12..12
(02)	High Damp	00..63 : 00..99	21:Quadrature Chorus, 22:X Over Chorus		
(03)	Pre Delay	00..C8 : 00..200	(00)	Delay Time L	00..FA : 00..250
(04)	E.R Level	00..63 : 00..99	(01)	Delay Time R	00..FA : 00..250
(05)	(NUL)	00	(02)	Mod Speed	01..63 : 01..99
(06)	EQ High	F4..0C : -12..12	(03)	Mod Depth	00..63 : 00..99
(07)	EQ Low	F4..0C : -12..12	(04)	Mod Waveform	EB..14 *20-3-4
NUL not listed from here on, Value must be 00			(06)	EQ Low	F4..0C : -12..12
7:	Wet Plate, 8:Dry Plate, 9:Spring		(07)	EQ High	F4..0C : -12..12
(00)	Pre Delay(L)		23:Harmonic Chorus		
(01)	Pre Delay(H)	00..C8 : 00..200	(00)	Delay Time A (L)	
(02)	E.R Level	01..0A : 01..10	(01)	Delay Time A (H)	00..1F4: 00..500
(03)	Reverb Time	00..63 : 00..99	(02)	Delay Time B (L)	
(04)	High Damp	00..63 : 00..99	(03)	Delay Time B (H)	00..1F4: 00..500
(06)	EQ Low	F4..0C : -12..12	(04)	Mod Speed	01..63 : 01..99
(07)	EQ High	F4..0C : -12..12	(05)	Mod Depth	00..63 : 00..99
10..12:	Early Reflection 1,2,3		(06)	Filter Split Point	00..12 : 00..18
(00)	E.R Time	00..46 : 100..800	24:Symphonic Ensemble		
(01)	Pre Delay	00..C8 : 00..200	(00)	Mod Depth	00..63 : 00..99
(06)	EQ High	F4..0C : -12..12	(06)	EQ High	F4..0C : -12..12

(07)	EQ Low	F4..0C : -12..12	(07)	EQ Low	F4..0C : -12..12
25,26:Flanger1,2, 27:X Over Flanger			38:Chorus-Delay, 39:Flanger-Delay		
(00)	Delay Time	00..C8 : 00..200	(00)	Delay Time	00..32 : 00..50
(01)	Mod Depth	00..63 : 00..99	(01)	Mod Speed	01..63 : 01..99
(02)	Mod Speed	01..63 : 01..99	(02)	Mod Depth	00..63 : 00..99
(03)	Feedback	9D..63 : -99..99	(03)	Feedback	9D..63 : -99..99
(06)	EQ Low	F4..0C : -12..12	(04)	Delay Time	00..E1 : 00..450
(07)	EQ High	F4..0C : -12..12	(05)	Feedback	9D..63 : -99..99
28:Exciter			40:Delay / Hall		
(00)	Harmonic density	9D..63 : -99..99	(00)	Delay Time (L)	00..1F4 : 00..500
(01)	Hot Spot	00..09 : 01..10	(01)	Delay Time (H)	
(06)	EQ High	F4..0C : -12..12	(02)	Feedback	9D..63 : -99..99
(07)	EQ Low	F4..0C : -12..12	(03)	High Damp	00..63 : 00..99
29:Enhancer			(04)	Reverb Time	00..61 : 0.2..9.9
(00)	Harmonic Density	01..63 : 01..99	(06)	High Damp	00..63 : 00..99
(01)	Hot Spot	01..14 : 01..20	(07)	Pre Delay	00..96 : 00..150
(02)	Stereo Width	00..63 : 00..99	41:Delay / Room		
(03)	Delay	01..63 : 01..99	(00)	Delay Parameter	*20-3-1
(06)	EQ Low	F4..0C : -12..12	:		
(07)	EQ High	F4..0C : -12..12	(03)		
30:Distortion, 31:Over Drive			(04)	Reverb Time	00..2F : 0.2..4.9
(00)	Drive	01..6F : 01..111	(06)	High Damp	00..63 : 00..99
(01)	Hot Spot	00..63 : 00..99	(07)	Pre Delay	00..96 : 00..150
(02)	Resonance	00..63 : 00..99	42:Delay / Chorus, (43:Delay / Flanger)		
(03)	Distortion Level	00..63 : 00..99	(00)	Delay Parameter	*20-3-1
(06)	EQ Low	F4..0C : -12..12	:		
(07)	EQ High	F4..0C : -12..12	(03)		
32,33:Phaser 1,(2)			(04)	Depth	00..63 : 00..99
(00)	Mod Depth	00..63 : 01..99	(05)	Speed	00..D8 *20-3-2
(01)	Mod Speed	00..D8 : *20-3-2			bit0=0:S,=1:T(<-0)
		bit0=0:Sin, =1:Tri	(06)	MG Status *20-3-3	bit1 <- 0
(02)	MG Status *20-3-3	bit1 <- 1,(0)			bit2 <- 0, (<-1)
		bit2 <- 0	(07)	Feedback	0,(9D..63:-99..99)
(03)	Feedback	9D..63 : -99..99	44:Delay / Distortion, 45:Delay / Over Drive		
(04)	Hot Spot	00..63 : 00..99	(00)	Delay Time (L)	00..1F4: 00..500
34:Rotary Speaker			(01)	Delay Time (H)	
(00)	Vibrato Depth	00..0F : 00..15	(02)	Feedback	9D..63 : -99..99
(01)	Acceleration	01..0F : 01..15	(03)	Drive	01..6F : 01..111

(02)	Slow Speed	01..63 : 01..99	(04)	Hot Spot	01..63 : 01..99
(03)	Fast Speed	01..63 : 01..99	(05)	Resonance	00..63 : 00..99
35:Auto Pan, (36:Tremolo)			(06)	Distortion Level	01..63 : 01..99
(00)	Depth	00..63 : 00..99	46:Delay / Phaser		
(01)	Speed	00..D8 : *20-3-2	(00)	Delay Parameter	*20-3-1
		bit0=0:Sin, =1:Tri	:		
(02)	MG Status	*20-3-3	bit1 <- 1, (0)	(03)	
		bit2 <- 0	(04)	Depth	00..63 : 00..99
(03)	Shape	9D..63 : -99..99	(05)	Speed	00..D8 *20-3-2
(06)	EQ High	F4..0C : -12..12	(06)	Feedback	9D..63 : -99..99
(07)	EQ Low	F4..0C : -12..12	47:Delay / Rotary Speaker		
37:Parametric EQ			(00)	Delay Time (L)	00..1F4: 00..500
(00)	Low Freq	00..1D : 00..29	(01)	Delay Time (H)	
(01)	Low Gain	F4..0C : -12..12	(02)	Feedback	9D..63 : -99..99
(02)	Mid Freq	00..63 : 00..99	(03)	Acceleration	01..0F : 01..15
(03)	Mid Gain	F4..0C : -12..12	(04)	Slow Speed	01..63 : 01..99
(04)	Mid Width	00..63 : 00..99	(05)	Fast Speed	01..63 : 01..99
(05)	High Freq	00..1D : 00..29			
(06)	High Gain	F4..0C : -12..12			

*20-3-1 : Delay Parameter
Same as 40-(00)..(03)

*20-3-2 : Data(Hex) Value[Hz]
00..63 0.03.. 3.00 (0.03step)
64..C7 3.1 ..13.0 (0.1 step)
C8..D8 14 ..30.0 (1 step)

*20-3-3 : MG Status
bit0 : Waveform =0: Sin, =1:Tri
bit1 : Phase =0: 0 degree, =1:180 degree
bit2 : Wave Shape =0: Normal
=1: for Flanger

*20-3-4 : Waveform
EB : T+10
| : |
FF : T-10
00 : S-10
| : |
14 : S+10

*20-4 : Dynamic Modulation Source
0 : None
1 : Joy Stick (+Y)
2 : Joy Stick (-Y)
3 : Aftertouch
4 : Assignable Pedal 1
5 : Assignable Pedal 2
6 : VDA EG

ARRANGEMENT PARAMETERS (TABLE 8)

No.	TRACK	PARAMETER	VALUE
0	----	TEMPO	40..240
1	----	CHORD LATCH	0..1

2	----	SPLIT POINT	0..127
3	----	TRANSPOSE	-11..11
4	----	VARIATION BY FILL 1	0..12
5	----	VARIATION BY FILL 2	0..12
6	----	EFFECT 1 TYPE	0..47
7	----	EFFECT 1 LEVEL	0..100
8	----	EFFECT 2 TYPE	0..47
9	----	EFFECT 2 LEVEL	0..100
10	DRUM	PROGRAM	*21
11	DRUM	VOLUME	0..127
12	DRUM	PANPOT	-1..31
13	DRUM	C LEVEL	0..10
14	DRUM	D LEVEL	0..10
15	DRUM	MUTE	0..1
16	----	----	----
17	DRUM	OUTPUT STATUS	0..3
18	----	----	----
19	----	----	----
20	PERC	PROGRAM	*21
21	PERC	VOLUME	0..127
22	PERC	PANPOT	-1..31
23	PERC	C LEVEL	0..10
24	PERC	D LEVEL	0..10
25	PERC	MUTE	0..1
26	----	----	----
27	PERC	OUTPUT STATUS	0..3
28	----	----	----
29	----	----	----
30	BASS	PROGRAM	*21
31	BASS	VOLUME	0..127
32	BASS	PANPOT	-1..31
33	BASS	C LEVEL	0..10
34	BASS	D LEVEL	0..10
35	BASS	MUTE	0..1
36	BASS	OCTAVE	-2..2
37	BASS	OUTPUT STATUS	0..3
38	BASS	WRAP AROUND POINT	-1..11
39	----	----	----
40	ACC1	PROGRAM	*21

41	ACC1	VOLUME	0..127
42	ACC1	PANPOT	-1..31
43	ACC1	C LEVEL	0..10
44	ACC1	D LEVEL	0..10
45	ACC1	MUTE	0..1
46	ACC1	OCTAVE	-2..2
47	ACC1	OUTPUT STATUS	0..3
48	ACC1	WRAP AROUND POINT	-1..11
49	----	----	----
50	ACC2	PROGRAM	*21
51	ACC2	VOLUME	0..127
52	ACC2	PANPOT	-1..31
53	ACC2	C LEVEL	0..10
54	ACC2	D LEVEL	0..10
55	ACC2	MUTE	0..1
56	ACC2	OCTAVE	-2..2
57	ACC2	OUTPUT STATUS	0..3
58	ACC2	WRAP AROUND POINT	-1..11
59	----	----	----
60	ACC3	PROGRAM	*21
61	ACC3	VOLUME	0..127
62	ACC3	PANPOT	-1..31
63	ACC3	C LEVEL	0..10
64	ACC3	D LEVEL	0..10
65	ACC3	MUTE	0..1
66	ACC3	OCTAVE	-2..2
67	ACC3	OUTPUT STATUS	0..3
68	ACC3	WRAP AROUND POINT	-1..11
69	----	----	----
70	KBD1	PROGRAM	*21
71	KBD1	VOLUME	0..127
72	KBD1	PANPOT	-1..31
73	KBD1	C LEVEL	0..10
74	KBD1	D LEVEL	0..10
75	KBD1	MUTE	0..1
76	KBD1	OCTAVE	-2..2
77	----	----	----
78	----	----	----
79	KBD1	DAMPER ENABLE	0..1

80	KBD2	PROGRAM	*21
81	KBD2	VOLUME	0..127
82	KBD2	PANPOT	-1..31
83	KBD2	C LEVEL	0..10
84	KBD2	D LEVEL	0..10
85	KBD2	MUTE	0..1
86	KBD2	OCTAVE	-2..2
87	----	----	----
88	----	----	----
89	KBD2	DAMPER ENABLE	0..1

*21 : 0..127 = BANK 0 : 0..127
 128..255 = BANK 1 : 0..127
 256..383 = BANK 2 : 0..127
 384..399 = BANK 3 : 0..127
 400, 401 = BANK 4 : 0,1

DRUM KIT PARAMETERS (TABLE 9)

No.	PARAMETER	No. from TABLE 3
0	INST No.	0+7n
1	KEY	1+7n
2	TUNE	3+7n
3	OUTPUT LEVEL	4+7n
4	DECAY	5+7n
5	EXCLUSIVE ASSIGN	2+7n b5..7
6	A:B PAN	2+7n b0..4
7	C SEND LEVEL	6+7n b4..7
8	D SEND LEVEL	6+7n b0..3

PARAM No. for DRUM PARAM CHANGE
 n : 0..59 (Index)